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THE BANKERS TRUST BUILDING.

TROWBRIDGE & LIVINGSTON, ARCHITECTS

THE architects of our high office buildings have been proceeding in diametrically opposed directions of design during the entire history of tall buildings in this country, and the basic difference consists in the amount of stress laid on individual vertical members as opposed to the vertical treatment of its different portions. In the two magnificent office buildings, one of which is but just completed, and the other not fully completed, the Bankers Trust Company and the Woolworth building, are at the present time the most satisfactory and complete expositions of the two styles; one based on classic motives and the other on Gothic. The majority of critics in discussing the evolution of the office building have insisted that there was not sufficient emphasis laid on the vertical members in the majority of the structures and would rather condemn the use of the order as indicative of post and lintel construction, while upholding as models such structures as the one designed by Louis Sullivan in Bleecker Street in which the horizontal members have been almost entirely concealed, and the vertical members are dominant. The critics of this school have generally held that the Gothic style with its possibilities of accenting the columns was the ultimate expression of steel construction; personally I cannot see this viewpoint. It is perhaps true that the structure of a building should be indicated by its exterior, but the question as to how far this indication should be carried gives opportunity for a wide divergence of opinion. Every steel building is primarily of post and lintel construction, and just why the Gothic style which is fundamentally arch construction, absolutely at variance with the principles of the actual work it encloses, should be more appropriate than a frank use of mason work as fireproofing, and post lintel classic architecture as decoration is not to me, at least, readily comprehensible, I do not even believe that the architects of the tall buildings such as the New Municipal Office Building and the Bankers Trust Company intend to convey the idea that the building is entirely of masonry, nor do I think it any more logical that the masonry covering of a steel skeleton should follow exactly its constructive portions than to demand that the human body should actually resemble the bones beneath; at least I have never heard the nose criticised as being illogical because there is no bone at the end of it.

I have taken this opportunity to propound a theory of design of office buildings because of all examples with which I could substantiate it the Bankers Trust Company is the most completely satisfactory. Built upon an almost square lot, its outline is that of a tower of which the base is a magnificent Ionic order, the shaft a stone curtain wall, the attic a second Ionic order, and the crown a stepped pyramid. If architecture is worth anything at all it must convey through whatever means it employs the impression of beauty, and in this Messrs. Trowbridge and Livingston have been immensely successful in a problem whose difficulties were very considerable. The first and second stories each were designed to contain a separate banking institution, though after the structure was very nearly complete these were merged into a single corporation. Above the banking room had to be placed sufficient number of office floors to make a very expensive site and a very elaborate structure economically successful. This necessitated the treatment of the lower part of the building to indicate not one but two banking offices and as the lower part of the building can only be seen from comparatively near at hand it had to be designed

at a scale which, satisfactory on close inspection, is still large enough to form an adequate base for the tallest entire building in the world. This was done by the use of a Grecian order with fluted columns of exquisite refinement but great size; of belt courses delicately modeled, and with moldings under cut sufficiently so that their shadows are strong enough to count with the whole mass.

The engaged columns at the twenty-sixth story have been modeled from the well known Bassae cap, which, as any one who has endeavored to use it knows, is about the most refractory example which the Greeks have left us, and it has been used here with splendid effect. The pyramidal top is an expedient which, if my memory serves me right, is here tried for the first time in an office building and its success in this structure prompts the assertion that it will be used a great many times more. The space is not wasted but encloses record rooms, certain offices and storage spaces which had to be worked into the building somewhere and can be obtained here at as little expense as possible.

The three lower stories are occupied by the Bankers Trust Company. On the first floor the Foreign Exchange, Transfer and Coupon Departments whose activities are distinct from those of the Bond, Trust, and Banking departments located on the main or second floor. The two stories are connected with three large private elevators and a grand marble staircase of interesting design. The interior of the lower floor is treated in a light brown marble, the piers as antae with Greek pilasters recalls on the walls. Down either side of the main banking room runs a row of four Ionic columns with Bassae caps again used to good advantage.

The upper portion of the elevator enclosure is entirely of plate glass, and this frank revelation of modern mechanism in a Greek temple interior, is somewhat startling, and at the same time fascinating. The interiors of both these banking rooms are notable for simple, clean design, quiet color and an air of businesslike beauty, they are designed to express as far as possible what should be (and probably is) the spirit of the institution. One feels no sense of oppressive magnificence although one recognizes at once that no expense has been spared to build a clean, airy and spacious banking room. This impression is assisted by the ceiling treatment, of plaster finished like Caen stone, with the coffers of the ceilings kept very flat, the moldings decorated with Greek motives of exquisite refinement and delicately tinted in pale colors.

The corridor or entrance hall leading past the elevators to the upper stories is another splendid piece of design with a coffered barrel vault and a rather simple type of metal work in the elevator fronts. The keynote of the entire building is a refined elegance; luxury and magnificence have been left out of the scheme altogether. Gilding, colors, marbles, ornate metal work and brilliant colors of all kinds both in the interior and exterior to which we have been accustomed in most of the successful American structures are notable only by their absence, for the building is almost Puritanical in its simplicity, but what has not been forgotten in any portion of the building is quiet, ordered, and delicate design. The work has been done throughout with a sure hand and even to such details as the office trim, the electric switch boards, the check desks and small matters of that kind has been handled with surety and accuracy. The lighting fixtures for example, so often points of over elaboration, are perfectly charming yet do not force themselves upon the attention; and the scheme throughout has an air of

reticence and power which augurs well for the future of American architecture.

In the construction of the building over eight thousand tons of Concord granite was furnished by the New England Granite Works and it is especially remarkable that in a job of such magnitude there was not one minute lost by delay in delivery of material. The granite presents a splendid uniformity of quality and is ideal for carving.

The Hecla Iron Works furnished the exterior bronze work, such as entrances, window guards, and the large windows in the banking rooms, as well as the interior bronze work, notably the elevator fronts and gallery facias and railings in the banking rooms. They also furnished all the ornamental iron for the building. An interesting item is a continuous flight of stairs running from the 3rd to 29th floor, a distance of almost 350 feet, requiring 531 steps.

The greatest care has been exercised in the marble work to obtain the most artistic results and was executed by Batterson & Eisele, under the direct supervision of Mr. Eisele, who considers this latest addition to their long list of fine pieces of work their greatest achievement. The Bank quarters on the first, second and third stories, are fitted up with "Tavernelle Clair" from floor to ceiling. The columns and piers with their artistically carved capitals being of the same material. The stairs between first and second story banking rooms, the columns of the second story banking room, as well as the counter screens, really represent the highest type of workmanship and selection of material. The entrance hall as well as the elevator halls throughout the building are trimmed and wainscoted with light Botticino marble. For all floor and toilet work, a newly discovered Tennessee marble,—"Silver Gray,"—has been used, producing not only a very pleasing, but highly serviceable result.

M. F. Westergren, Inc., executed the copper and bronze covered work in the whole building, also the standard Board of Fire Underwriter doors. The work is of an exceptionally fine character and consists of copper covered windows and bronze covered doors. The bronze covered doors we believe are the finest of their kind ever manufactured. A great deal of care was taken in constructing the windows and the bronze ceiling lights in the interior of the building.

The counter screen for the first, second and third floors, including doors, grilles and rails also elevator doors, partitions, register faces, etc., were manufactured and installed by John Polachek Bronze and Iron Co. All of the interior bronze work in the Bankers Trust Company's own quarters is beautifully executed and this combination of rich bronze and marble makes the Banking Rooms most imposing.

Throughout the building the time worn combustible idea of trim has been completely obviated. The structure is essentially fireproof for not a particle of inflammable trim is to be found in it. This is another installation of the Dahlstrom products, which can be truthfully given credit for making the first totally fireproof building. Certainly no concern has been more responsible in bringing about the ideal fireproof building than has the Dahlstrom Metallic Door Company.

It will be interesting to know there were 10,000 sq. ft., of polished "wire glass" used in the upper half of elevator doors and windows on the north and west sides of the building; 7,000 sq. ft. of polished "wire glass," silver embossed on one side, in lower half of elevator doors and corridors, approximately 4,000 sq. ft. of rough "wire glass," silver embossed on rough side, used in sub-dividing office partitions

making a total of over 20,000 sq. ft. of "wire glass" all of which is the very best obtainable, same being the standard product made by the Mississippi Wire Glass Co.

The elevator equipment consists of eleven Otis Traction Passenger Elevators, five for express service, five for local service, and one for relief service. There are also four Drum Type Passenger Elevators for the Banker's Trust Company, one Tower Elevator, serving from the 29th to the 37th floors, and two Plunger Sidewalk lifts. The relief elevator is to be used for express or local service, should either become overloaded, or in the event of one of these elevators being out of service. Every elevator door throughout the building is equipped with ball bearing door hangers and door locks manufactured by the Reliance Ball Bearing Door Hanger Company. These hangers are of special construction and every hanger thoroughly tested before leaving the plant.

Every drop of water entering the building passes through and is purified by Loomis Manning Filters. The plant necessary to handle the large quantity of water used in this building is composed of four single cylinder vertical filters of the standard Loomis type. After it has passed through the system of filtration, the water drawn from any faucet in the building is perfectly safe for drinking as well as being free from all suspended matter which tends to clog up pipes and encrust the boilers.

The Yale & Towne Mfg. Co. filled the large order for hardware. It would be almost impossible to calculate the numerous small details in the hardware item of this great structure. The Grant overhead pulley was used throughout.

The plumbing fixtures and installation of same were well placed in the contract of W. G. Cornell Co.

It is only during comparatively recent years that it has been thought necessary to take into consideration the matter of ventilating a building, scientifically. The American Blower Company have solved the problem of supplying clean, cool, fresh air to a building of any type or size. In this case the installation consists of three large blower and four large exhauster "Sirocco" fans.

"The bank is equipped with a Lamson Pneumatic Dispatch Tube System containing one and one half miles of 3 x 6-inch oval tube, connecting seventeen points on seven floors with a central station in the second basement; this central is used exactly as is a telephone exchange. By installing a tube system the bank was enabled to retain the valuable fourth floor for renting purposes by placing its bookkeeping department on the twenty-sixth floor, and have a messenger that will neither talk or loiter, and is always available to get a written answer to a written query within a half minute, a valuable feature in any business office."

The lighting arrangements are very unusual for a banking room, public space, banking counters and all desks being evenly illuminated without glare or shadows, and yet without a lamp being in the line of vision. The Frink System of Scientific lighting is now recognized as the ideal artificial illumination and adaptable to many purposes. The H. W. Johns-Manville Company has control of the sale of Frink specialties.

This is one of the conspicuous structures in New York's famous skyline, whether viewed from the Harbor, or the East or North Rivers. People coming up the Bay on the great ocean liners are impressed with the appearance which this building presents in conjunction with the Singer Tower the two towers forming the posts of the gigantic "Gateway of New York."

AN APPRECIATION.

WITH the exception of the Periclean Age in Greece, at no time in history has mechanical skill in structural work reached such a high degree of perfection as at the present day in New York.

The Bankers Trust Company Building, in the construction of which there have been fifty or sixty sub-contractors engaged, has established a new standard in the art of building. To specify any particular trade is perhaps unfair, because excellence characterizes every part of the building.

To have co-ordinated and organized the forces represented in the production of such a building, to have brought together such a vast amount of material without confusion, on the busiest corner of this city, to have removed the old buildings without accident, to have sunk foundations to the rock sixty-five feet below and to have raised the building and completed it in record time and still to have preserved the highest quality in material and workmanship, evidences the genius of the master-builders, Marc Eidlitz & Son.

We, the architects, are glad to have this opportunity to pay a deserved tribute to the sub-contractors, their foremen and their mechanics for the able assistance and co-operation which have enabled us to produce in lasting materials such a monument to the structural and mechanical skill of our age. It is not too much to say that from the purely utilitarian point of view this building is a masterpiece of construction.

TROWBRIDGE & LIVINGSTON.

PROBLEMS AND THE NECESSITY FOR THE SPECIAL TRAINING OF A LANDSCAPE ARCHITECT.

CHARLES W. LEAVITT, JR.

PROBLEMS in Landscape Architecture are so varied that it would be impractical to attempt to describe them all. And it is only my intention now to illustrate by description of a few plans some of the things that demand the attention of the profession. It may be a small lot in a village on which is to be constructed a dwelling, or the grounds about a village church or a cemetery. It may be the layout of a mill, large manufacturing plant or steel works where it is a question of utilizing a small piece of land or treating artistically a large piece of property so as to make the simplicity of these work buildings a little less objectionable. We may have an athletic field, ball park or race track which requires a knowledge of these sports to properly design the work. It may come in the form of a suburban development, requiring the knowledge of water supply, drainage, lighting, heating, street pavements, etc.; the development of Fair Grounds, exhibition parks, a college or University campus, a town or city park, railroad station grounds or speedway; the park system for a city with the arrangement of lines of travel through the congested portion of the metropolis or the entire layout of a city with all the many complications of modern civilization and requirements.

We may have to arrange the semi-public grounds around a large institution or country estate. The large country estate with its many needs of farm life together with city luxuries and perhaps with shooting and fishing preserves.

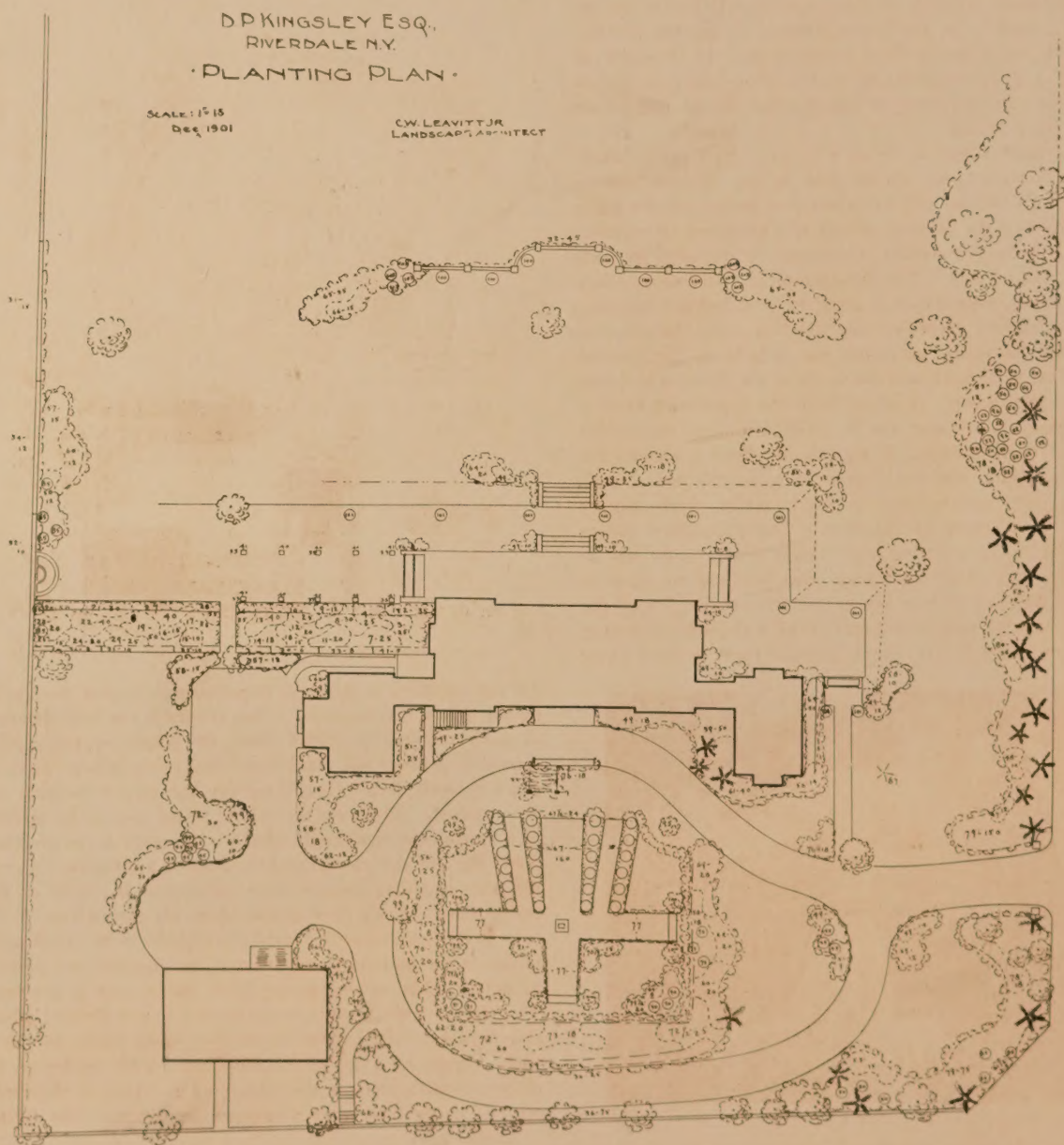
It may be the reclamation of a marsh land to make it a suitable place for dwellings, or the improvement of the shores of a river or lake or the beautification of the water works of a city. All these improvements require special

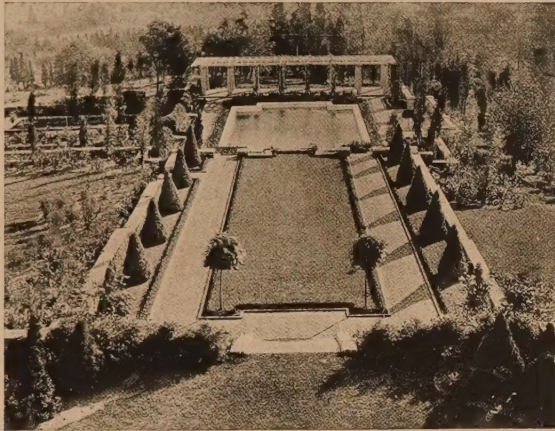


FORMAL GARDEN, D. P. KINGSLEY, RIVERDALE, N. Y.



TERRACE, D. P. KINGSLEY, RIVERDALE, N. Y.



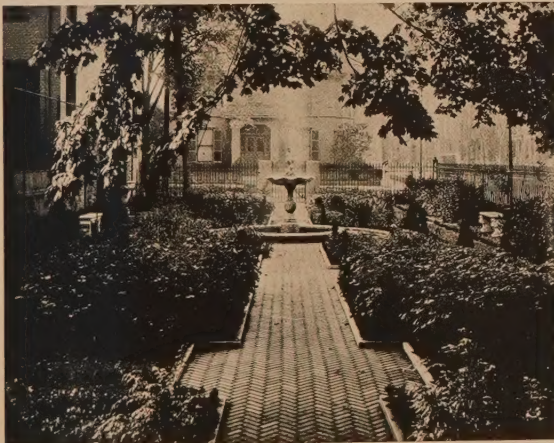


SUNKEN GARDEN AND POOL.

knowledge of the subjects treated and of the desired results, and as these results may vary much with the climate we get an endless number of different problems. It may be interesting to take up a few of these problems and see the work of planning and development as it will show more in reality the various steps necessary to pass through in order to secure a satisfactory result.

The small suburban lot or a lot in a city requires about as much ingenuity per square foot as any problem one is likely to have, as you will be expected to include in the plans everything that the country affords at a minimum of expense.

It is quite remarkable what may be included in such a small piece of land. The illustration (1) will show you a corner lot in a town which is about 40 x 60 feet and forming an outlook for the owner's house which occupies the adjacent lot. This lot when surveyed was a hole in the ground partly filled with brick and refuse from the house which had just been torn down. You see from the illustration how it was proposed to enclose the lot with a railing to prevent the plants being tramped down and to afford a support for vines, roses, etc., the installation of a central and a wall fountain, the construction of brick walks with marble edgings, the planting of the beds. The photograph shows the results. The planting was unique as the area was so limited in horizontal dimensions that we had to plant it vertically and put in four layers of bulbs one on top of the other; there were some 8,000 bulbs besides the other planting. These came into flower about a week apart as each layer



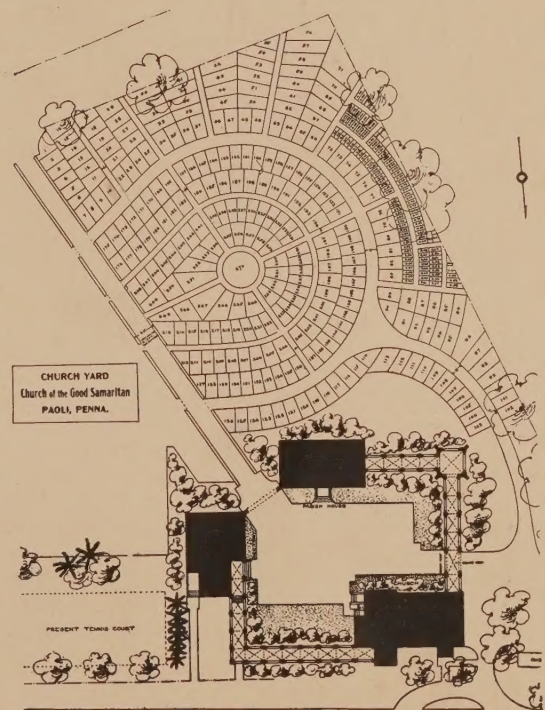
TREATMENT OF A CITY LOT.

succeeded the one above and gave some wonderful waves of color.

The suburban lot of five acres gives more freedom and a chance for terraces, herbaceous and rose gardens, some screen effects with planting, arbors, vegetable garden, etc. You will note the plan of the ground, the photographs show finished result.

The larger places that embrace farm and park layouts are harder to comprehend and it is best to take them up in detail.

As an example of a large country estate layout or arrangement may be illustrated by the Haskell estate at Red Bank of about 400 acres, comprising rolling forest and meadow lands in Northern New Jersey. Here the owner wished to surround himself with real farm and country conditions and at the same time have these serve as a setting for a very elaborate country home with fitting approaches and gardens. As with all problems of this nature the selection of the site



for the residence is of initial importance as here is the climax of the whole composition. This involved the consideration of such features as views from the house, water supply, approach grades, soil conditions, prevailing winds, existing plant growth, forest conditions and the proper location for the gardens. In short, the whole estate had to be studied as a unit or the result will not be a harmonious composition. After the site was chosen and the general approaches located, the plan began to require more detailed study, some of the results of which the photographs show for themselves.

It is not uncommon for the practitioner to be called upon to locate the buildings and arrange the grounds of a church property. The accompanying plan shows such a problem. The church itself already being located it was deemed advisable to make this the center of the main composition and let it form a part of a group of buildings to be connected by cloisters with a court in the center. The layout of the cemetery itself involved many important problems. The future

ugliness or beauty of American Cemeteries rests largely in the hands of the Landscape Architect. If the present and very prevalent conditions continue we will not have a park-like cemetery with peaceful surroundings, but huge displays of marble and granite. In this connection it seems safe to recommend the flat slab rather than an upright monument as less injury is done the landscape.

One of the most interesting and perhaps most effective of the problems which come up for solution from time to time is the arrangement and development of large suburban properties. Here one has to combat continually with the commercial tendency of the real estate promoter and the impractical idealist. The successful compromise requires the greatest practical and aesthetic ability combined with tact and engineering skill which are necessary to bring the work to a successful end when the whole development will not only be a beautiful composition but a desirable and healthy place in which people can live normal lives and the land so developed will form a suitable unit in the ultimate development of the country.

There is probably no more important opportunity offered to the Landscape Architect than in creating and developing city and country parks. Here one has to be not only well versed in landscape design but informed as well on such subjects as composition and treatment of soils and lawn making and many other agricultural, horticultural and engineering subjects. Artistic grading of the open lawn areas and the proper introduction of water in parks require the touch of a mature artist. And in connection with this class of work comes also the designing of country clubs and the many kinds of institutional work this country is just developing.

Enough has already been said to show the wide diversity of the problems which the landscape architect is called upon to solve and it hardly seems necessary to say that the successful practitioner must be versatile and able to grasp in a broad way a very wide range of subjects. Therefore, the question arises of how one is to prepare himself for meeting these various requirements, granting, of course, that one possesses the natural taste and love for beauty without which no one should attempt to enter the profession. The first step in the educational line should be a general college course, much emphasis being placed upon the study of literature, art, history and economics. After one has gained a broad and liberal foundation, then, and not until then, is the student ready to begin the more or less special subjects involved in the practice of this profession. The general principles of the two great allied professions of architecture and engineering should be at least partly mastered so that one is able to appreciate a well proportioned building, a well designed roof line as well as able to appreciate topography and grades from the more practical engineering point of view.

Architectural detail as you will notice in some of the photographs forms a very important part of the successful design, and the ability to know good from bad in this regard is often the means of making a success or failure of the whole composition.

Farming in the broad sense covers so much and is really so essential to the successful landscape practitioner that I feel like saying that one must know farming if one is to solve correctly some of the problems which come to hand. At least it would be well to spend as much time as possible on the farm as from its practical workings much valuable information about the cause and effect of developed nature

will be secured and one will find this information of constant use in daily practice.

The careful study of art in the form of landscape pictures and sculpture is of the greatest importance and will give a sense of balance and proportion necessary for the development of a landscape plan.

The familiarity with the forest both in its natural and also in its cultivated or developed state gives one scale and breadth as the vastness and depth of the forest cannot be understood till one has lived in the woods—when reverence and respect is felt for this development of nature and of the power and importance the forest possesses and how dependent we are on it for many of the necessities of life. It is really the right bower of the landscape profession.

Water should be studied in all possible forms. It is susceptible of development into great charm in a broad landscape, and is most attractive in the garden in the form of fountains, pools, cascades, etc. Besides being the basis for almost one-half of our outdoor sports. It should be brought into use wherever possible in landscape design.

The soil is in itself a complex study as we rarely find two pieces of land exactly alike; and it is most necessary for the growth of plantations that they be placed in soil of suitable composition and the ventilation and drainage be such that the soil will remain sweet and free from mould and sourness, a thorough knowledge of the soil is essential, from the bacteriological as well as the chemical standpoint.

It must be remembered that our clients live on the ground we develop and it is therefore only fair to them that their ideas and desires should be carried out as far as possible and their properties given as much of the owner's character as feasible rather than smack of our professional notions. We should be the power of directing the clients ideas into proper design to obtain the effect that they wish rather than produce something which they do not want and which will not make them happy. General climate conditions must be given great consideration as well as the minerals contained in the land that one is developing as the health and well being of the client as well as all vegetation is dependent upon these basic conditions and the lack of knowledge of these subjects should entail calling in an expert. Historical records of gardening are of help, though the development of planting in general has been so rapid in the past few years and apparently so little attention was formerly given to it that we do not begin to find in these past records, the information and inspirations on the subject of plants and planting that we do in engineering and architectural design by way of comparison, so that if one becomes familiar with the work of the past century there is little use in spending time in research of what may have happened before, excepting as a matter of historical interest. The reason for this seems to be that there was no real professional gardening in the past and the work was largely if not entirely by amateurs who kept no accurate record of what they accomplished.

It is quite obvious that it is essential for the landscape architect to understand, at least to some extent, surveying, road construction and sanitary engineering as these subjects enter into almost every landscape problem and they form the fundamental principles upon which the problem must be solved.

Not all can be like Michael Angelo, master of many arts and sciences but the broader the general education in language, art and literature the better fitted one will be to understand the needs of the people and realize their point of

view in a broad and unbiased way. Then beneath this should be the sub-structure of technical training backed up by practical understanding of nature.

One should not feel it to be essential to be able to pick up individual problems in each of these different branches and do them as well as specialists in their branch of the profession, desirable as that might be. But the landscape architect should be so familiar with the theory and practice of these different branches that he will give them their relative value in his general work and when he finds the value of one particular branch is dominate in his problem he should call in a specialist for that work and not allow the general solution to be incomplete or marred by his lack of knowledge. In other words, he must secure the best solution either with his own knowledge of all the practice or with the help of others where he realizes he is not thoroughly equipped.

METAL LATH IN RESIDENCE CONSTRUCTION.

H. B. McMASTER.

IN the development of our civilization it is an interesting study to note the changing fashions in all things of utility, convenience and adornment. It has seemed an unending "cutting and fitting;" we have tried one thing for a time, abandoned it, and again our fancies or needs have restored it to favor.

We now admire the half-timbered house or plastered exterior such as the people of Shakespeare's day were wont to live in. The easy harmonizing of natural color tones with the cement gray perhaps accounts for much of its charm. It is so flexible in design, too, that architects have found it a pleasing and fascinating field to work in and through a very wide use of the stucco type of residence they have disclosed its weaknesses and applied the remedies.

The stucco house with a construction which the best architectural and mechanical practice offers looks, when new as substantial as brick, stone or solid concrete; it does not fail perceptibly from year to year, but ages slowly and gracefully.

The wooden building must be repainted or otherwise repaired at regular intervals to keep it tight and sound; even masonry buildings need repointing of the mortar joints, but for some reason the owner is not willing that a stucco house shall be built for him which may require any outside patching or resurfacing, however remotely.

It is to this standard of requirement that architects have had to work and the construction shown by the accompanying cut of wall detail is the embodiment of ideas resulting from wide experience in planning and building.

Stucco as compared with brick is rapid in construction; the walls are excellent non-conductors of heat and cold, they are dry and they are lasting. They are permanently self-colored, not becoming shabby but mellowed by age, saving not only the first cost of painting, but the cost of repainting, which is a large item in the life of the wooden house.

Early in a man's consideration of the kind of house he shall build will enter the question of price. To determine the relative cost of various kinds of residence buildings an association of manufactures last year secured bona fide bids on a series of houses, each one exactly like the others in every particular except the outer walls which were to be constructed of the several materials to be compared. A little modern eight-room house of good design and excellent arrangement was chosen, the original having been actually built near Boston. The average figures taken from five sets of bids were as follows:

Type.	Description.	Average Bid	Excess over clapboards.	Percentage excess over clapboards.
No. 1.	Clapboard	\$6,759.95		
No. 2.	Shingle	6,868.80	\$108.85	1.6
No. 3.	10-inch brick wall—hollow..	7,372.48	612.53	9.1
No. 4.	12-inch brick wall—solid....	7,641.00	881.05	13.0
No. 5.	Stucco on hollow block....	7,187.65	427.70	6.3
No. 6.	Brick veneer on hollow block	7,483.16	723.21	10.7
No. 7.	Stucco on metal lath.....	6,952.90	192.95	2.9
No. 8.	Brick veneer on boarding...	7,226.44	466.49	6.9
No. 9.	Brick veneer on studding...	7,153.98	394.03	5.8

From this it will be seen that the house with outer walls of stucco on metal lath may cost only 2.9 per cent more than the ordinary clapboard house. Another consideration that is worth while is the protection afforded by stucco against external hazard from fire. The stucco house is good enough to deserve a permanent roofing of either slate or tile which will last as long as the house and cost no more than would the ordinary shingling followed during the life of the average building by repeated reshingling.

And here again comes in the appeal to the artistic, for no roofing material ages and weathers more beautifully than tile. Laid in the roof with the natural variations of kiln-run material, instead of being mistakenly selected for uniform color, the tiles grow richer, softer and more velvety in surface year by year until moss and lichens here and there add the final touch of age. So roofed, the stucco house has the same permanent, old world masonry look of brick or concrete. The average frame house, even when built on a liberal sized lot, stands a slim chance in a general conflagration, and but multiplies the hazard to those beyond in the path of a fire.

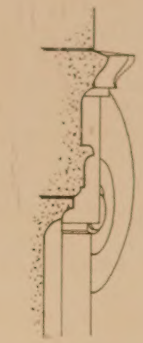
In recent fires, particularly Chelsea and Bangor, the flames swept great districts, spreading rapidly from roof to roof, the fire brand being to the wood shingle as the spark to tinder.

Cement stucco on metal lath applied to wood studding, as recommended by the Associated Metal Lath Manufacturers, has withstood fire and water under tests so severe as to justify saying it will preclude all possibility of the spread of a fire such as might reach residence district provided, of course, that the roof is covered with tile, slate or an equally non-combustible roofing.

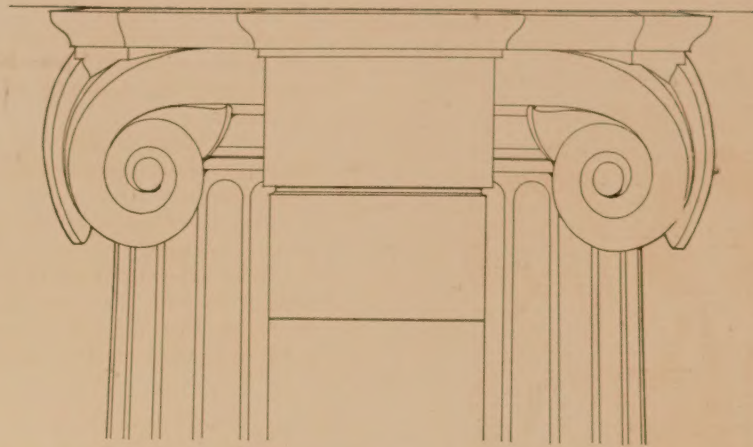
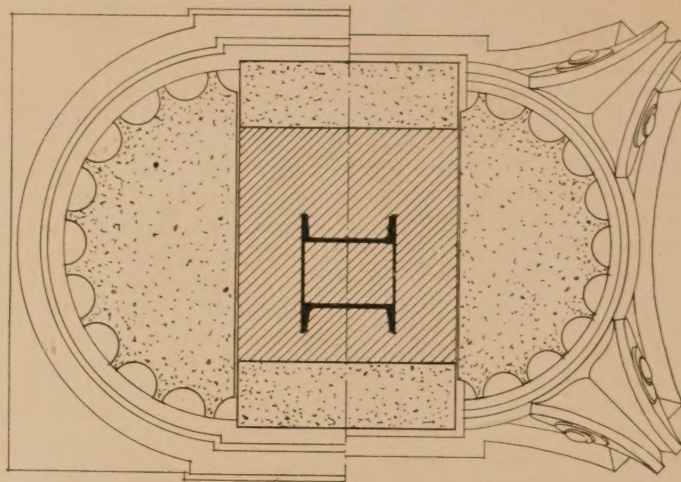
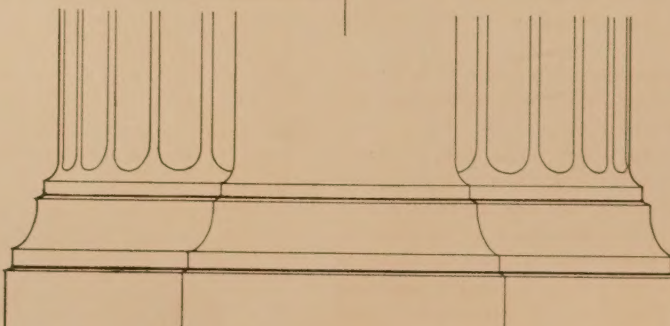
It is within the memory of this generation that forests were cleared away as incumbrances. This waste of our resources and consequent advance in values has been naturally followed by a turning to the use of other materials than lumber. This condition, which is one of the reasons for stucco, also obtains in considering the substitution of metal lath for wood in stucco work. Architects are still specifying No. 1 white pine lath from force of habit but there "ain't none."

If one-quarter of these specifications were filled, the price of "No. 1 white pine" would be so high that metal lath would seem cheap in comparison. Builders have to put in what they can get and architects will continue to take poorer and poorer material as long as wood lath is specified. The wood lath we put on ten years ago was bad stuff. It was sappy and knotty. It stained the plaster and warped and shrunk with every change of atmospheric humidity. The wood lath we are now using is higher in price and poorer in quality. The best wood lath will shrink and swell alternately with the varying temperature and moisture; the key on wood lath is far apart so that the plaster depends in large degree on its adhesion to the wood. The expansion and contraction of plaster is microscopic as compared with wood

(Continued page 77)



SECTION

PLAN
AT BASEPLAN
AT CAPITAL

DETAIL OF COLUMNS

26TH FLOOR

BANKERS TRUST CO BLDG.

COR OF WALL & NASSAU STS. N.Y.C.

SCALE IN FEET
0 1 2TPOWBRIDGE & LIVINGSTON
ARCHITECTS

(Continued from page 75)

so that the movement of the wood lath in time breaks its bond with the mortar while the swelling of the wood punches the key and breaks it.

On the ceilings of bath rooms and kitchens where occasionally exposed to steam it is frequently seen that areas of plaster will drop from wood lath for these reasons.



SUPPOSE SARGENT HAD DECORATED A WALL PLASTERED ON WOOD.

The above might have been expected because in every building there is moisture which is absorbed by the plaster. This moisture remains at the intervals between the lath, but where it is over the wood lath, it is sucked into the wood. The moist plaster accumulates more smoke and dust than the dryer portion and the outline of the wood lath is brought out in consequence.

The use of any material which has a too great affinity for water may cause trouble when plaster and especially stucco is applied to it. It will pull the water out of the mortar, then it will crack and disintegrate.

The objections to wood lath are not found in metal lath. The key is continuous over the entire back of the wall; it does not absorb moisture; expansion is due only to temperature, and plaster and metal lath expand and contract equally under like conditions.

It is very important when there is a desire to save space to know the space-saving value of the 2-inch solid metal lath partition. Assuming the average room to be 10 feet by 12 feet, or 120 square feet, with 6-inch walls, and 10 feet 4 inches by 12 feet 4 inches or 127.4 square feet with the 2-inch wall of metal lath and studding, we find there is over 6 per cent more occupiable or rentable space in the building with 2-inch partitions. Whether one is lessor or lessee, it is fundamentally a matter of paying a certain price per square foot for shelter. Therefore, the 2-inch solid metal lath partition at less expense increases the return on a building more than 6 per cent over that where the 6-inch wall is used.

It may not be so essential in the lower priced residence that metal lath be substituted for wood lath on the interior but for exterior work the reasons for the use of metal lath are multiplied. Metal lath for stucco found immediate favor with architects and its use has spread so rapidly that to it much may be credited for the development of exterior plastering.

A proper combination of metal lath and plaster with its perfect bond will insure an unbroken surface and having said so much, I may consistently be asked "What is a proper combination?"

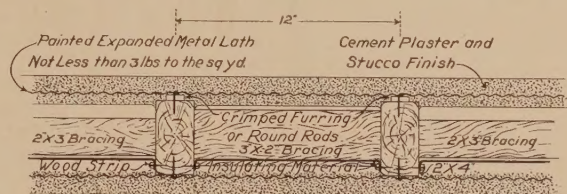
In formulating a specification we want:

1. Framing that provides for (a) the least movement to the members to strain the plaster wall (b) a wall with the best insulating properties (c) a construction that will protect the residence from exterior fire hazard (d) furring that will insure a complete envelopment of the metal lath (e) construction that will keep moisture from getting back of the plaster.

2. Lathing so applied as to give a wall that will have the maximum of resistance toward any tendency to movement of the framing.

3. Plastering that (a) will not develop cracks (b) protects the metal lath.

The following detail of a typical exterior wall section used as the basis for a specification for stucco construction if followed carefully will give one a building economical and enduring in any habitable climate. Before starting to outline

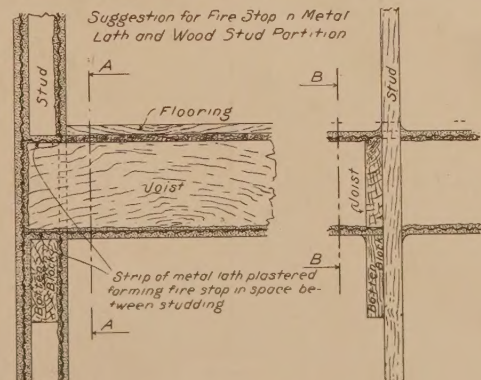


Detail Showing Section of Exterior Wall

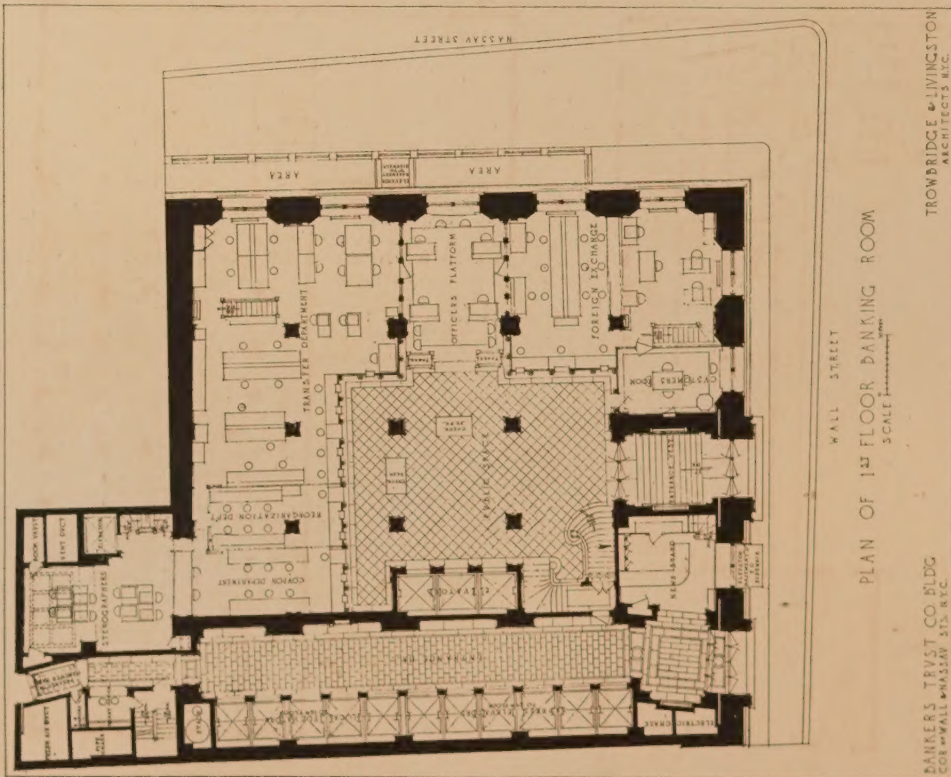
a specification I should like to induce in the reader a frame of mind such as might be suggested by a perusal of the phrase used at the heading of all specifications by Theodore Cooper, the bridge engineer who designed the first Quebec bridge; it was something like this: "No specification, be it ever so perfect, can be regarded as in any sense a substitute for experience and common sense."

FRAMING AND GENERAL CONSTRUCTION.—Neither framing nor lath can hold a building together if it is placed on insecure foundation.

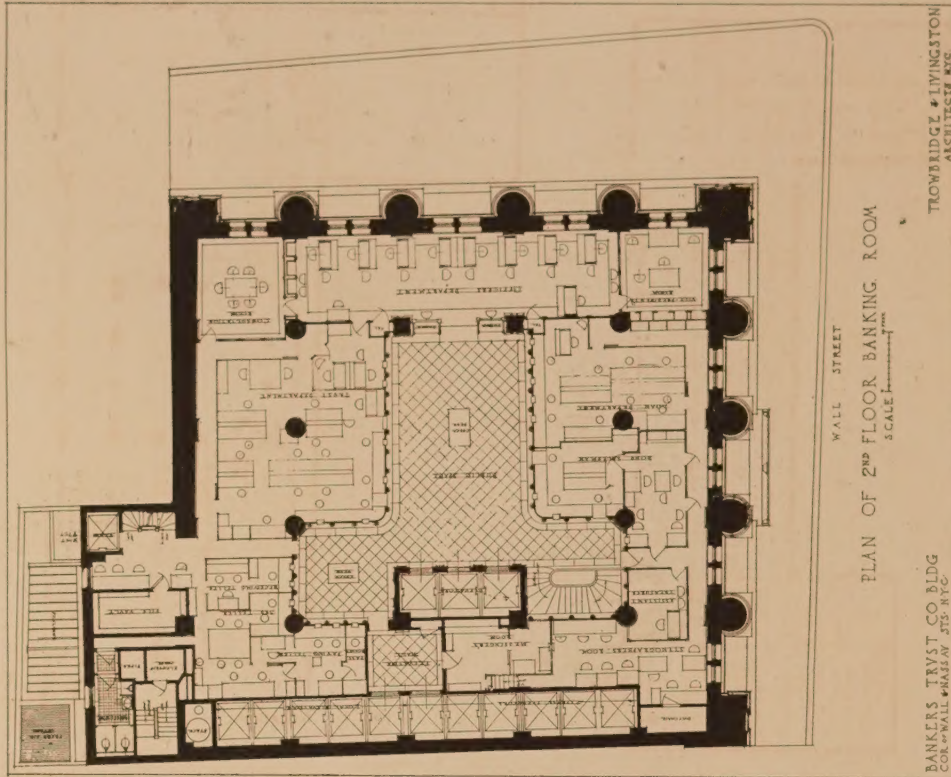
Flimsy construction in framing is false economy. The best will prove cheapest. The studs spaced at 12 inches between centers wherever possible, should be run entirely from foundation to the rafters without any intervening horizontal grain in the wood. These studs shall be tied together just below the second story joists by a 6-inch board which shall be let into the studs on their inner side, so as to be flush and securely nailed to them. This board will also act as a sill for the second story joists, which in addition will be securely spiked to the sides of the studs. At two points between the foundation and the eaves, brace between the studding with 2 x 3-inch bridging placed horizontally but with the faces of the bridging inclined in alternate directions in adjacent spaces. Modern fire preventive methods should prompt one to make provision for fire stops in walls between floors, particularly if wood lath is used on the inside of the wall. One of many methods that might be suggested is shown by the accompanying cut.



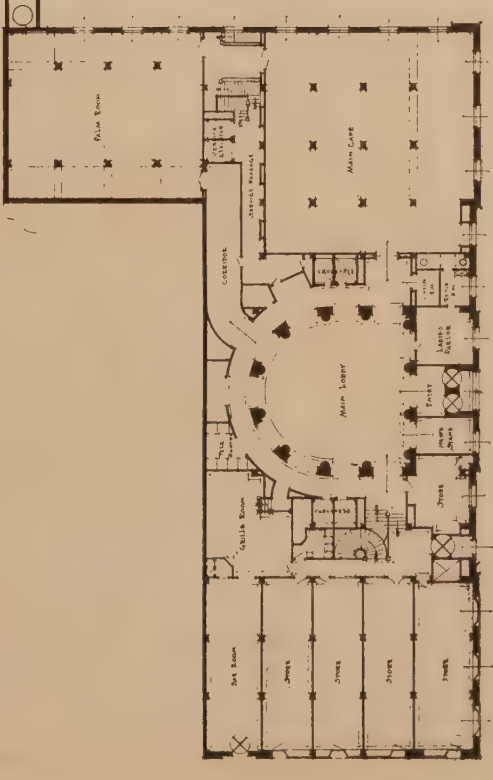
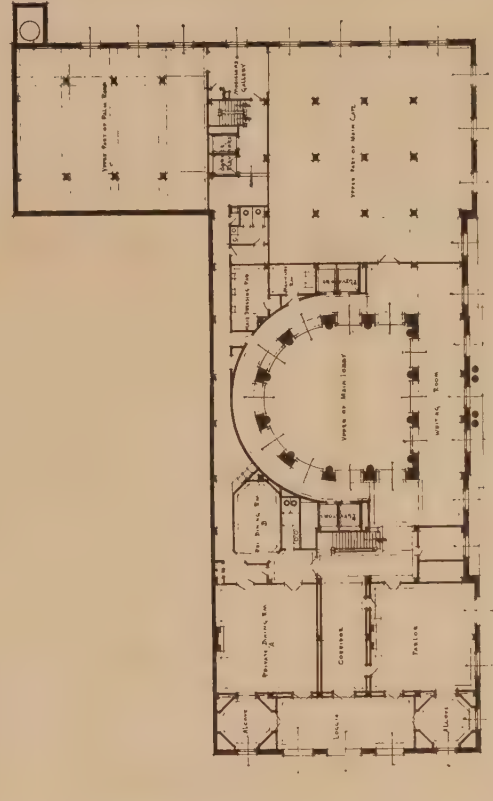
(Continued page 85)



PLANS, BANKERS TRUST BUILDING, NEW YORK.

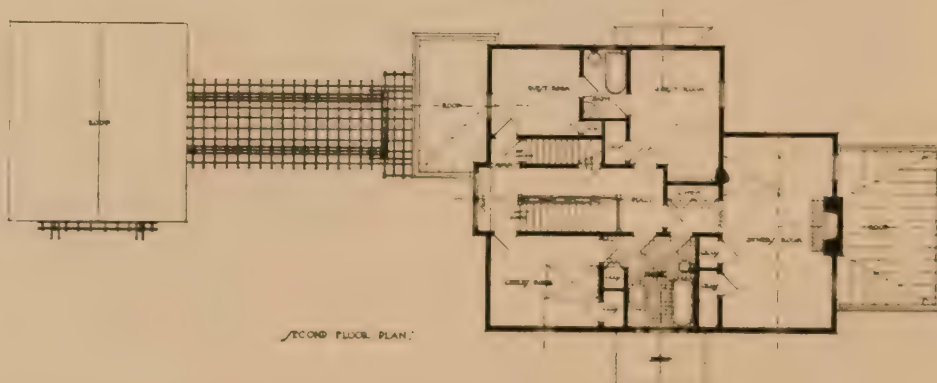


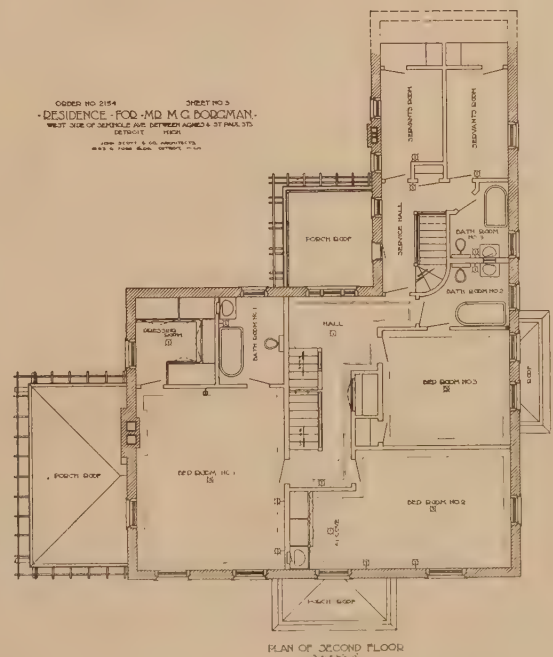
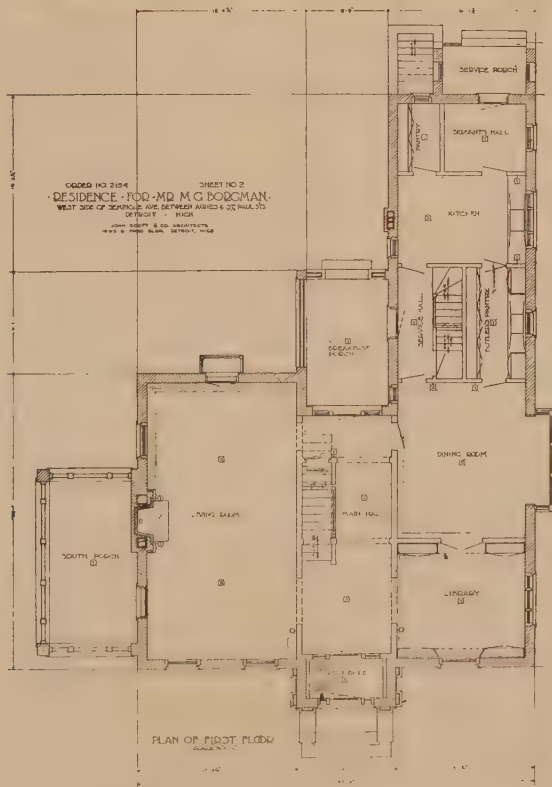
Trowbridge & Livingston, Architects.

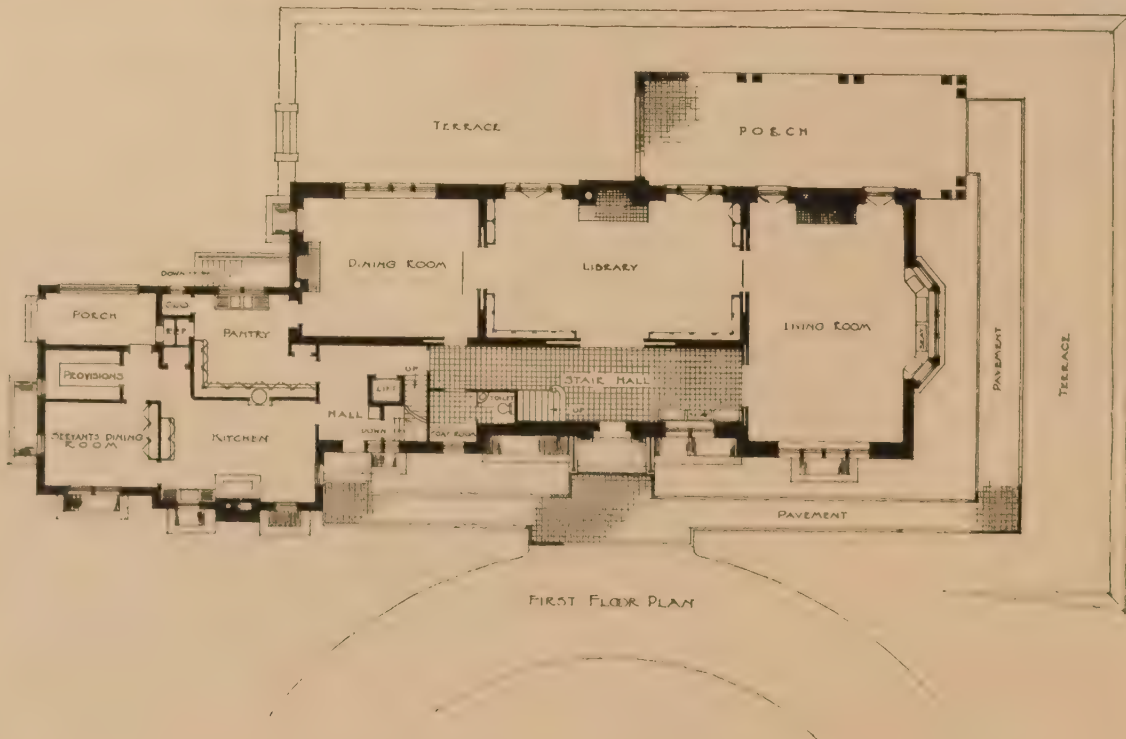


F. M. Andrews & Co., Inc., Architects

PLANS, HOTEL TAFT, NEW HAVEN, CONN.

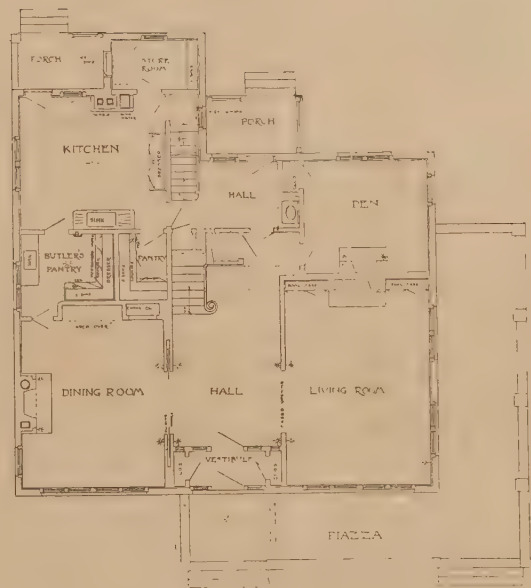
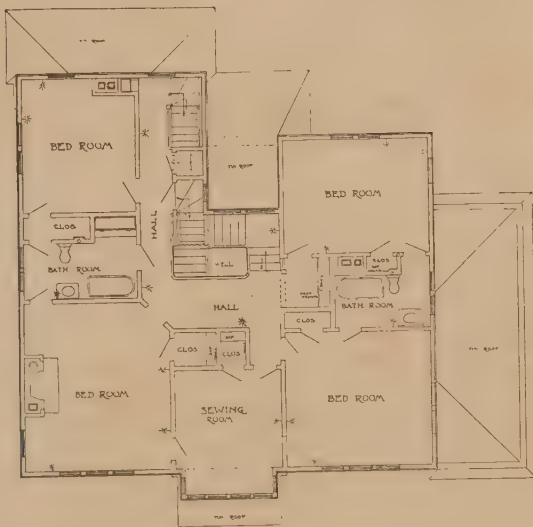






HOUSE AND PLAN, WILSON POTTER, CHESTNUT HILL, PHILADELPHIA.

Brockie & Hastings, Architects.



HOUSE AND PLANS, WM. R. WEBSTER, BRIDGEPORT, CONN.

Joseph W. Northrop, Architect.



HOUSE, MRS. E. A. GREGG, NASSAU BOULEVARD, L. I.

Oswald C. Hering, Architect.

(Continued from page 77)

All roof gutters should be fixed and down-spouts put up before the plastering is done; the down spouts should be temporarily placed about a foot from the wall so there will be no break in the plastering where they are to be finally fixed.

Wood copings or rails for tops of parapets, balustrades, etc., are not so good as cement for they may curl up, warp, check, crack, and in various ways fail to do what they should—*keep water from getting behind the plaster*. This also applies to brick chimneys which, when plastered, should have wide and tight caps of concrete or stone to prevent water running behind the plaster.

If only wood sills are used, they should project well from the face of the plaster and should have a good grip, either by being placed with a downward slant or by a groove rebated in the under side of the sill near enough to its edge that it will not be covered by plaster. *The drip is an essential of good stucco construction that cannot be slighted. It must be used to prevent water getting behind the plaster.*

Lath and plaster should not be carried all the way down to the ground.

Care should be taken that all trim be placed the proper distance from the studding or furring to show its right projection after the plaster is on. It is a common mistake to allow too little for the lath and plaster, with the result that moldings which should project from the face of the wall are back from it or partly buried under the plaster, thus missing the effect desired. About 1½ inches should be allowed for the lath and plaster, making sure that the projection of the moulding to show when finished is not measured in as part of this thickness.

FURRING.—Use painted steel rods or painted crimped furring. One-quarter-inch is best and it should not be over one-half-inch at the most. This furring is to be applied along the face of the studding with galvanized staples.

INSULATION.—After the lath on the outside has been back-plastered the air space may be divided by applying heavy building paper, quilting, felt or some suitable insulating material between the studs, fastening it by nailing wood strips over folded ends of the material. This insulation should be so fastened as to clear the 2-inch bridging, leaving the preponderance of the air-space on the outside. Care must be taken to keep the insulating material clear of the outside plaster and to make tight joints

against the wood framing at the top and bottom of the spaces and against the bridging where the 3-inch face intercepts.

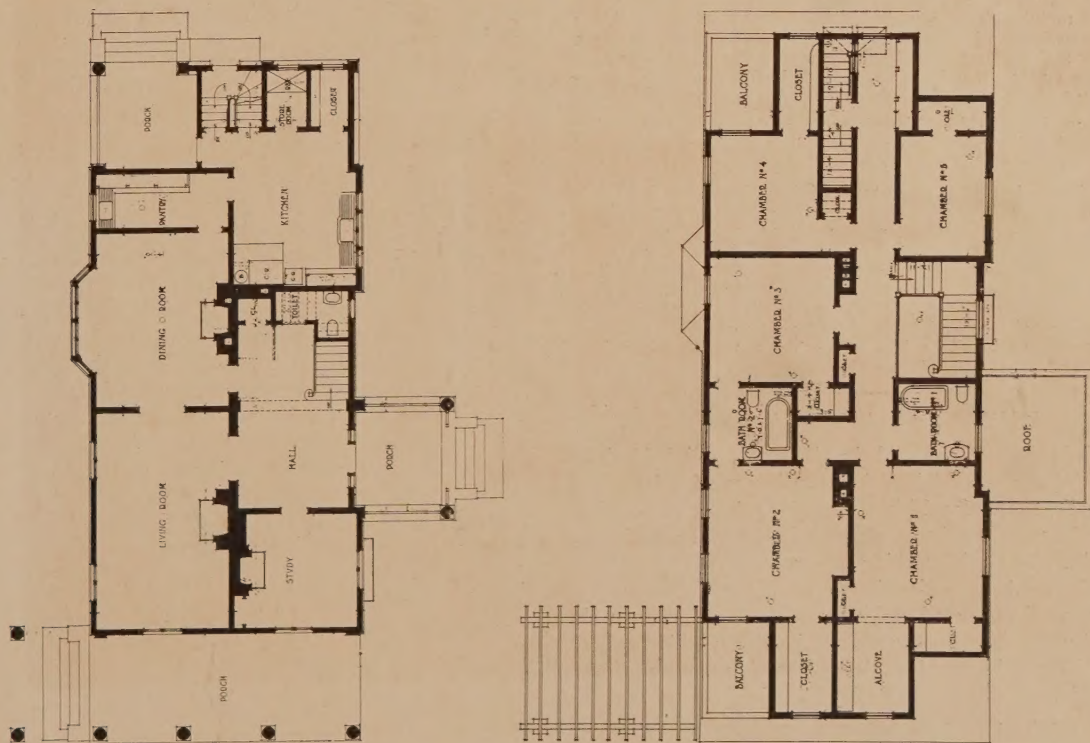
LATHING.—Before lathing, it is well to apply one coat of paint or waterproofing to the face of the studs where it will come in contact with the plaster. Good construction is not possible with wood lath. Best results are gotten with the heaviest gauge metal lath which should weigh not less than three pounds to the square yard and it is best to use the kind that will give the largest key. It should be painted, also, to protect it until it can be applied and covered with the Portland cement plaster. The lath is fastened horizontally over the furring strips at 12-inch centers with 1¼ x 14-inch gauge staples. The sheets when lapping between furring should be tied with No. 18 gauge wire and each sheet should be lapped or locked with the adjoining sheet. There should be 6-inch strips of metal lath bent around the corners and stapled over the lathing, unless the sheets of metal lath as applied are folded around the corners so as to secure a proper bond for the plaster and prevent cracking at the corners. In applying lath to the inside of a building the sheets of metal lath should be folded around the inside corners to prevent the cracks which so often develop there when wood lath is used.

PLASTERING.—Portland cement itself will protect metal from corrosion by reason of its moisture-resisting qualities, but on account of the porosity of the plaster occasioned by the use of sand and stone, it is well to use a waterproofing material to prevent moisture from penetrating the stucco. The first coat should be about ½-inch to ¾-inch in thickness and the second coat should be about ¾-inch, but the two coats combined should not be less than 1¼ inches in thickness. The last coat should have in it a mixture of waterproofing which has been tried out thoroughly and tested and for the mixture the manufacturer's specifications should be followed closely.

It is aimed for the first and second coats to get a Portland cement mortar with as little lime in it as will allow it to work freely. Clean winter cattle hair, free from salt, should also be used in sufficient quantity to hold the plaster thoroughly together.

Calcined gypsum should not be used in combination with Portland cement; the gypsum will destroy the protective quality of the cement. Neither should it be used as a substitute for Portland cement.

For 1st and 2nd coats and back-plastering, mix in the following proportion:



PLANS, HOUSE, MRS. E. A. GREGG, NASSAU BOULEVARD, L. I.

Oswald C. Hering, Architect.

LIME MORTAR.—Two barrels of hydrated lime, 1 yard of clean sharp sand free from loam, 4 bushels cattle hair.

Make up at least three days before using.

CEMENT MORTAR.—Two parts of clean sharp sand free from loam, 1 part Portland cement.

Mix fresh in small batches as used.

The lime mortar and cement mortar should be mixed and tempered separately, measured carefully, equal parts of each and mixed well together.

In plastering over the face of the stud, the plaster should be forced well through the lath in order to fill entirely the space between the lath and the stud.

The back-plastering should be a heavy coat well troweled so that the lath is entirely enveloped. The finish coat may be done in a way to get any one of the many surfaces which give stucco its charm; this coat should contain no lime as it makes the wall more porous and if a lighter color is wanted than can be gotten with ordinary cement, a white Portland cement should be used.

The waterproofing acceptable to the architect should be mixed with the last coat of the exterior according to directions given by the waterproofing manufacturer. The lathing and plastering on the inside of the wall need not differ from ordinary practice, although attention is again directed to the limitations of wood lath dwelt upon above.

The exterior plaster must not be allowed to dry rapidly. Do not let it dry out inside of a week; if necessary hang a curtain in front of the wall of burlap or other material so that the wall can be kept moist for several days. Stucco should never be applied when the temperature is below freezing. These precautions will insure a surface of enduring and artistic texture, light gray in color.

STUCCO ON BRICK.

In applying stucco over brick chimneys a 1/2-inch painted or galvanized steel furring strip not lighter than 22 gauge should be fastened to the brick at 12-inch centers with galvanized staples 2-inch by No. 9 gauge driven into the mortar joints. The lath is fastened to the furring with No. 18 gauge galvanized wire, run through under the furring and the same material used for lacing the ends of the sheets together between furring strips.

The same mixture for plaster is recommended for this work as on the metal lath on studding. Before plastering, the brick should be well wetted to prevent its absorbing the moisture from the plaster and the first coat should be forced through thoroughly so that the entire space back of the lath is filled with the Portland cement plaster and the lath enveloped.

A discussion of this subject is not complete without mention of the possibilities of stucco as applied to the renewal of old houses—in other words “over-coating.”

The frame house at one stage of its life cannot be made to look good as such, and no device has so nearly fitted the situation as to stucco with Portland cement plaster on metal lath fastened over furring to the sheathing or right over the clapboarding. It is a renewal of youth in the building. An architect can change the roofing to correspond and make the other slight alterations to give it all harmony so that it looks as if it had been there always and, as is characteristic of stucco, has the appearance of being built to last. One does not tire of it, either. It wears well.

INDIANA CHAPTER A. I. A.

THE Indiana Chapter of the A. I. A., will hold their third annual exhibit at the John Herron Art Institute, Indianapolis, from May 10th to 31st, inclusive. The exhibit will then be transferred to South Bend, Ind., for a period of two weeks. The exhibit this year promises to be the most successful ever held, embracing over 400 subjects, among which are works of noted architects in eastern cities, as well as central west. For the first time in its history, this Chapter will publish an illustrated catalog, embracing pictures of the best exhibits.

The exhibit is under the direction of the following committee: Ernest W. Young, South Bend, Ind.; Henry H. Dupont, Indianapolis; Wilson B. Parker, chairman of committee and year book, Indianapolis.

STEALING A BUNGALOW.

QUITE a large proportion of all the people in this country are bright and, somewhat unfortunately, this class includes some who are not addicted to honesty, in an incurable form at least. Stories, whole books filled with them, have been written about unusual thefts, such as carrying away a hot cook stove, but one of the most remarkable instances of this kind was that which occurred recently at Gary, Ind. In that ready-made city of iron, steel and other important products, an architect, W. L. Hammons, recently complained to the police that thieves had stolen a newly completed bungalow, designed, constructed and owned by him. The building stood in Clark road, near Borman boulevard, but is there no more. With a calculating discernment, worthy a better cause, the thieves waited until the finishing touches had been put on the building, under the personal supervision of the architect and owner, and then hauled it away.

Going over one morning to inspect his future home, with a view to determining whether any finishing touches were necessary before he took possession, Mr. Hammons failed to find the house; it had vanished over night. The theory is that the thieves broke the bungalow up into four sections and hauled it away. Developed in a record-breaking way, Gary is not a large city, and yet at the present writing the architect's house has not been located, though he still retains title to the lot on which it was erected.

This occurrence is nothing new to Gary; indeed, it does not surpass the record previously established. Not long ago the city pesthouse disappeared and the Sherlock Holmes of the police found it in the possession of a widow who was using it as a boarding house. Gary is an enterprising city, as these incidents abundantly prove, but, up to the present writing, no effort to steal the great steel plant located there has been reported.

SASKATCHEWAN ASSOCIATION OF ARCHITECTS.

THE Saskatchewan Association of Architects (Canada) has been organized under an Act passed at the last session of the Legislature. The results of this will be that “after the expiration of six months it shall be unlawful for any person not holding a certificate of registration in Saskatchewan under the provisions of the above Act, to advertise or put out any sign, card, or other device for the purpose of indicating to the public that he is entitled to practice as an architect.” After six months from the period of the Act all persons wishing to practice architecture will have to pass the different examinations as called for by the Act, but any person who was practicing in Saskatchewan on March 23, 1911, may be registered under the Act within six months by paying the registration fee. The first council has been appointed by the Lieutenant-General in Council as follows: President, Mr. F. Chapman Clemesha, Regina; first vice-president, Mr. W. W. La Chance, Saskatoon; second vice-president, Mr. R. G. Bunyard, Moose Jaw; secretary-treasurer, Mr. W. G. Van Egmond, Regina. Committee: Professor A. R. Greig, Saskatoon; Mr. W. R. Reilly, Regina; and Mr. Norman L. Thompson, Saskatoon. A meeting of the council as above constituted was held in Regina on September 11, 1911, and by-laws, code of ethics, and competition regulations were drawn up and adopted. The by-laws of the association were approved by an Order-in-Council passed under date of January 15, 1912.



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